| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/576,656 | 05/22/2000 | Pierre Zakarauskas | 11336/622 | 3288 |

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| EXAMINER |
|---|
| LAO, LUN S |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2643 | |

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | Application No. | | Applicant(s) | |
|---|---|---|---|---|---|
| **Office Action Summary** | | 09/576,656 | | ZAKARAUSKAS ET AL. | |
| | | **Examiner** | | **Art Unit** | |
| | | Lun-See Lao | | 2643 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 January 2004*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-18* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-18* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All  b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

# DETAILED ACTION

## *Introduction*

1.    This is response to the amendment filed 1-16-2004.  Claims 2, 14 and 18 have

been amended and claims 1-18 are pending.

## *Claim Rejections - 35 USC § 102*

2.    The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

3.    Claims 2, 4 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by

Nevins (US PAT. 5,949,886).

Consider claim 2, Nevins teaches a method for performing a time series analysis of

an acoustic signal comprising:

determining information about an on/off state of a microphone comprising the

steps of:

comparing said acoustic signal to a threshold value to determine the on/off

(notified to check that a microphone is properly connected to sound card, it means if it is

connected properly, it is on, otherwise, it is off) state of a microphone (see figs. 5 and 7-

11), and continuously providing feedback (see fig., 2a steps, 62,64) based on said

information (see col.4 lines 24-60).

Consider claim 4, Nevins teaches the method further comprising

performing detection of signal clipping (see col.4 line 60-col.5line17);

Consider claim 14, Nevins teaches an apparatus comprising a computer-

readable storage medium having executable instructions that enable the computer to:

Inherently determine information about an on/off state of a microphone (see figs

5 and 7-11) by comparing an acoustic signal to a threshold value to determine the on/off

(notified to check that a microphone is properly connected to sound card, when the

microphone works correctly, it means on and such as low gain, no signal, it means off)

state of a microphone (see col.5 lines 7-63); and

continuously provide feedback (see fig.2a, steps 62, 64) based on said

information (see col.4 lines 23-59).

Consider claim 15, Nevins teaches the apparatus of a computer readable storage

medium further having executable instructions that enable the computer to:

performing detection of signal clipping (see col.4 line 25-col.5 line 35).

## Claim Rejections - 35 USC § 103

4.    The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.    Claims 1,3 5-9, 11-13 and 17-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Nevins (US PAT. 5,949,886) in view of Park et al. (US PAT. 5,590,241).

Consider claim 1, Nevins teaches an acoustic signal monitoring system, comprising:

a time series analyzer (see fig.1, 16) configured to determine and inherently provide a continuous feedback (see fig.2a step 62,64) about an on/off (notified to check that a microphone is properly connected to sound card, when the microphone works correctly, it means on and such as low gain, no signal, it means off) state of a microphone to a user (see figs. 5 and 7-11), said analyzer also enabling gain adjustment to prevent signal clipping or amplifier overloading (see col.5 line 7-63); but Nevins does not clearly teach a parameter adjustment element operating to calculate frequency domain parameters, said frequency domain parameters providing information about placement of the microphone with respect to an audio source, where said information enables the user to take appropriate actions to enhance operation of an audio system.

However, Park teaches a parameter adjustment element (see fig.1, 37) operating to calculate frequency domain parameters, said frequency domain parameters providing information about placement of the microphone with respect to an audio source, where said information enables (such as unvioce and voice) the user to take appropriate actions to enhance operation of an audio system (see col.4 lines 10-col.5 line29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to combine the teaching of Nevins into Park to provide a

speech processing system for enhancing speech signal in an noisy environments.

Consider claim 3, Nevins teaches a method of adjusting the quality of the

acoustic signal  comprising:

performing frequency domain transform of said acoustic signal (see figs, 3-4 and

6);

computing signal to noise ratio of said acoustic signal (see figs. 3-4 and 6); and

continuously providing a feedback (see fig.2a, steps 62,64) based on said signal

to noise ratio (see col.5 lines 7-63), but Nevins does not clearly teach performing

frequency domain transform of said acoustic signal.

However, Park teaches a performing frequency domain transform of said acoustic

signal (see col.4 lines 10-col.5 line29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to combine the teaching of Nevins into Park to provide a

speech processing system for enhancing speech signal in an noisy environments.

Consider claims 5-6, Nevins teaches the method further comprising:

the method further comprising of using said computed signal to noise ratio to

calculate gain adjustment for the amplifier (see figs.5 and 7-11 col.5 lines 7-63); and the

method of said signal to noise ratio provides information about placement of a

microphone with respect to an audio source (see col.5 lines 43-54).

Consider claim 7, Nevins teaches an apparatus comprising a computer-readable

storage medium having executable instructions that enable the computer to:

perform frequency domain transform of an acoustic signal (see figs., 3-4 and 6);

compute signal to noise ratio of said acoustic signal (see figs.5 and 7-11); and

continuously provide a feedback (see fig.2a, step, 62, 64) based on said signal to

noise ratio (see col.5 line 7-col.6 line 46); but Nevins does not clearly teach performing

frequency domain transform of said acoustic signal.

However, Park teaches a performing frequency domain transform of said acoustic

signal (see col.4 lines 10-col.5 line29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to combine the teaching of Nevins into Park to provide a

speech processing system for enhancing speech signal in an noisy environments.

Consider claim 8 Park teaches the acoustic signal monitoring system of further

comprising:

a frequency transform unit (see fig.1, 37) configured to transform incoming

acoustic signal into frequency domain for calculation in said parameter adjustment

element (see col. 4 lines 10-col.5 line 29)


Consider claims 9, 13, Nevins teaches the acoustic signal monitoring system of

further comprising:

performing puff (silence) detection using said calculated said signal to noise ratio;

and advising the user to adjust placement of the microphone that generates said signal

(see col.5 lines 7-63).

Consider claims 11-12, Nevins teaches the apparatus of a computer-readable

storage medium further having executable instructions that enable the computer to:

use said computed signal to noise ratio to calculate gain adjustment for the

amplifier (see fig.1, 18 and col.5 line 7-col.6 line 45); and the apparatus of the signal to

noise ratio provides information about placement of a microphone with respect to an

audio source (see col.5 line 7-63).

Consider claim 17, Nevins teaches the apparatus of a computer readable storage

medium further having executable instructions that enable the computer to:

performing detection of signal clipping (see col.4 line 25-col.5 line 35); and the

acoustic signal monitoring system of the time series analyzer (see fig.1, 16) configured

to inherently determine said on/off (see figs. 5 and 7-11) state by comparing signal from

said microphone to a threshold value (see col.5 lines 7-63).

Consider claim 18 Park teaches the acoustic signal monitoring system of the

frequency domain (see fig.1, 37) parameters is a frequency domain signal to noise ratio

(see col.4 line 10 –col.5 line 29).

6.    Claims 10 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over

Nevins (US PAT. 5,949,886) in view of Bakis (US PAT. 5,822,718).

Consider claim 16, Nevins does not explicitly teach the apparatus of the computer-readable storage medium having executable instructions that enable the computer to determine information about an on/off state of a microphone by comparing said signal to a threshold value to determine the on/off state of said microphone further comprises executable instructions that enable the computer to:

calculate the RMS value of said signal; and

compare said RMS value to a threshold value to determine the on/off state of said microphone.

However, Bakis teaches the apparatus of the computer-readable storage medium having executable instructions that enable the computer to determine information about an on/off state of a microphone by comparing said signal to a threshold value to determine the on/off state of said microphone further comprises executable instructions that enable the computer to:

calculate the RMS value of said signal; and

compare said RMS value to a threshold value to determine the on/off (when the microphone works correctly, it means on and such as low gain, no signal, it means off) state of said microphone (see col.4 line 55-col.5 line 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nevins into Bakis to provide a microphone diagnostic device which is able to estimated signal levels and signal-to-noise ratios reasonably accurately, without requiring additional test equipment (Bakis, col. 4, lines 35-38).

Consider claim 10, this is the method claim corresponding to apparatus claim 16.
See claim 16 for rejection.


### Response to Arguments

7.      Applicant's arguments with respect to claims 1-18 have been considered but are
moot in view of the new ground(s) of rejection.

Regarding applicant's argument that Nevins does not provide the claimed
continuous feedback that may give the listener a more satisfying experience (remarks,
page 8, first paragraph), the examiner's position is as follows. Nevins teaches the
continuous feedback in the looping/repeating of steps 62 and 64 (col. 4, lines 45-53),
which is also the same as the continuous feedback as disclosed (application as filed,
page 8, lines 1-9 and fig. 3).  The argued a more satisfying experience is not claimed.

Applicant's further argued that Novins does not perform frequency analysis on
the input signal to obtain microphone placement information (remark page 8, second
paragraph). The examiner respectfully disagrees. Nevins teaches performing  frequency
analysis on the input signal to obtain microphone placement information by determining
the speech frames, the average amplitude and the adequate/inadequate volume levels.
See col. 4, lines 24-59.

In response to applicant's argument that there is no suggestion to combine the
references, the examiner recognizes that obviousness can only be established by
combining or modifying the teachings of the prior art to produce the claimed invention
where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in

the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re*

*Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Nevins and

Bakis are directed to microphone systems with signal to noise ratios, and it would have

been obvious to one of ordinary skill in the art at the time the invention was made to

combine the teaching of Nevins into Bakis to provide a microphone diagnostic device

which is able to estimated signal levels and signal-to-noise ratios reasonably accurately,

without requiring additional test equipment (Bakis, col. 4, lines 35-38).

### Conclusion

8.     The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

9.     Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.
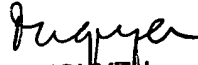
VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Lao,Lun-See whose telephone number is (703) 305-2259 The examiner

can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
(703305-2259

DUC NGUYEN
PRIMARY EXAMINER